



Introduction to EMFACT™

Andy Bray

Northeast Waste Management Officials'
Association (NEWMOA)



- What is EMFACTTM?
- EMFACTTM features
- What reports can EMFACTTM produce?
- How to get started?

- EMFACT™ - **Energy & Materials Flow & Cost Tracker**
- Collaboration between :
 - Northeast Waste Management Officials' Association (NEWMOA)
 - Massachusetts Office of Technical Assistance & Technology (MA OTA)
- **Free** software tool
 - www.newmoa.org/prevention/emfact/register.cfm



EMFACT™ Developers



EMFACT™ Team

Sponsors:

- NEWMOA
- MA OTA

Consultants:

- Sullivan International
- EMARIC

Funders:

- U.S. EPA ORD Collaborative Science & Technology for Sustainability Network
- EPA Region 2



Why EMFACT? Materials Accounting



Environmental Management Accounting or Materials Accounting enhances the ability of manufacturers & others to:

- **make decisions**
- **set priorities**

related to consumption of resources through tracking & analyzing their flow & associated costs



Why EMFACT? Materials Accounting



- Identify **priority chemicals** & examine opportunities for reductions
- Assist with **LEAN & green** - reducing waste
- Addresses demands for greater **transparency** in supply chains
- Help implement **pollution prevention & planning requirements**
- Small & medium-sized firms have not had software tool for materials accounting



Objectives



- A fully developed, **easy-to-use, & well-documented** energy, materials, chemicals, releases, & associated costs tracking & data analysis software tool
- Well-developed **training support materials** & a **user's guide**
- Online **downloadable free access**
- **Training**



Phase 1:

- Designed to help users understand & analyze their materials (including water & fuels) & chemical use in one or more facilities
- Designed to help track fuels, (i.e., oil, natural gas, coal, or bio-based fuels); treats these material inputs the same as others

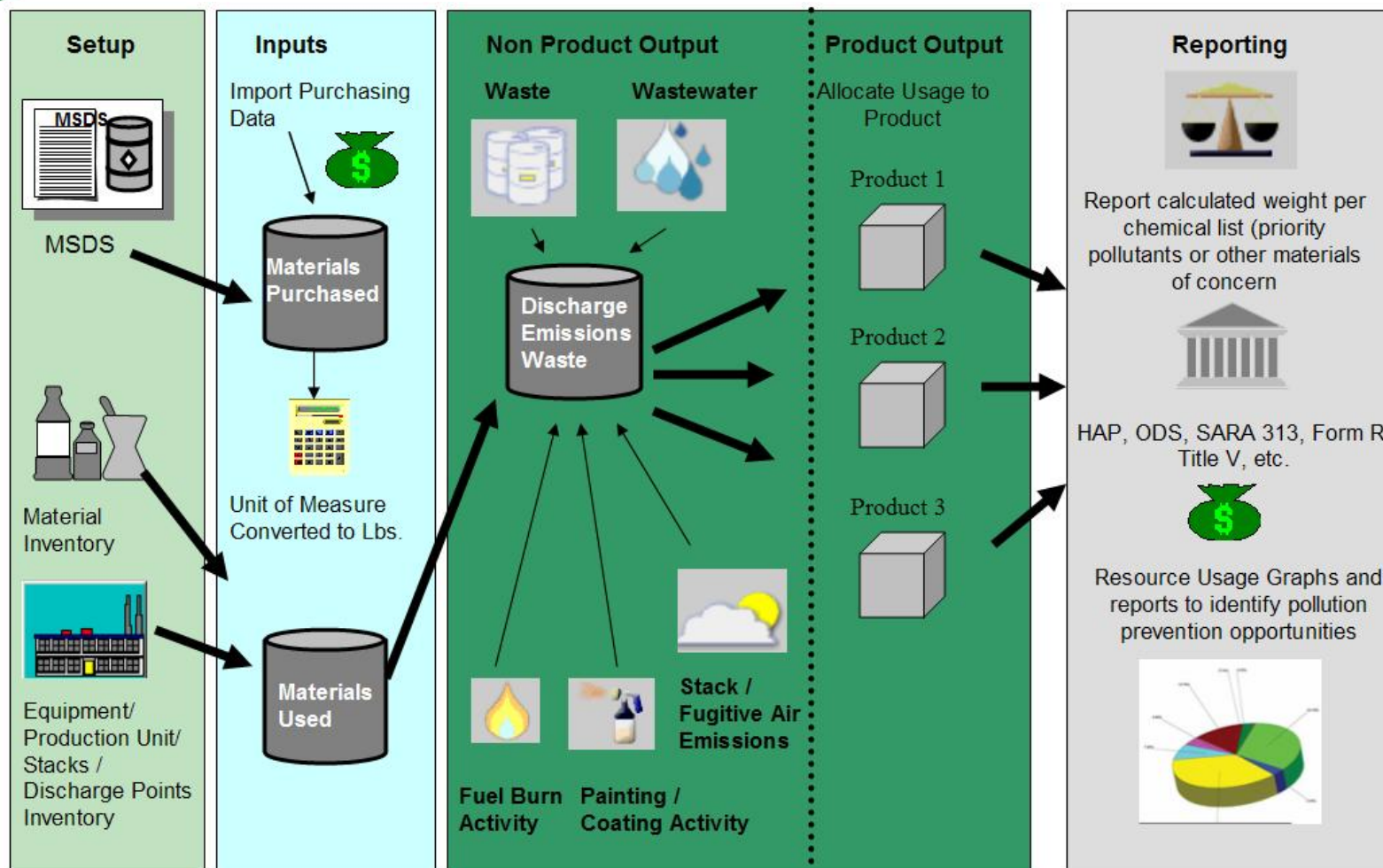


Phase 2:

- Enhance to enable users to track & evaluate use & purchasing of electricity & identify GHG emissions & reduction opportunities
- Seeking support for upgrades



EMFACT™ Design Concept





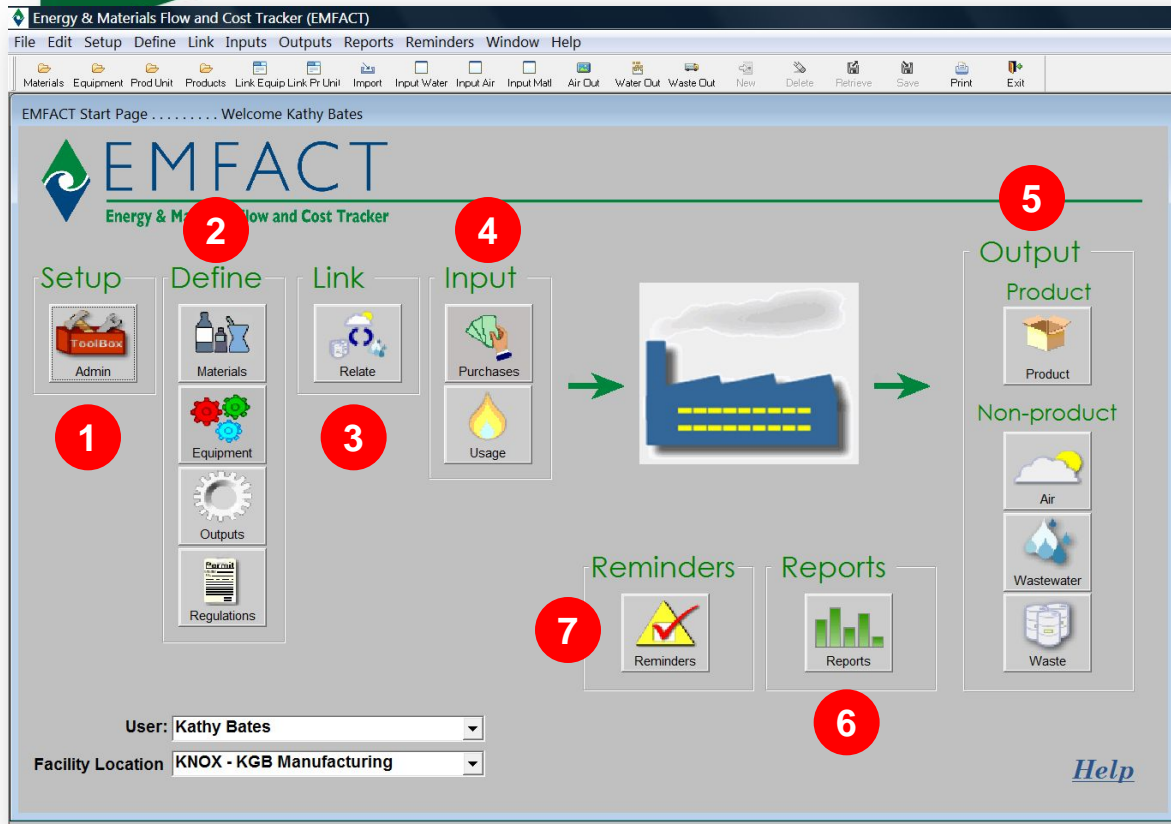
EMFACT - Procedure Flow

The Energy & Materials Flow and Cost Tracker (EMFACT) is an easy-to-use, well-documented tool to assist the small and medium size enterprise manage their fuel, water and materials usage. Using EMFACT, companies can track air emissions, wastewater, solid/hazardous waste, and related costs associated with the day-to-day operations of their business. Several reports are available to assist, along with a calendar to set up due dates and reminders.

The purpose of this document is to provide a high-level overview of the entire EMFACT process. Refer to specific training and documentation for additional details.



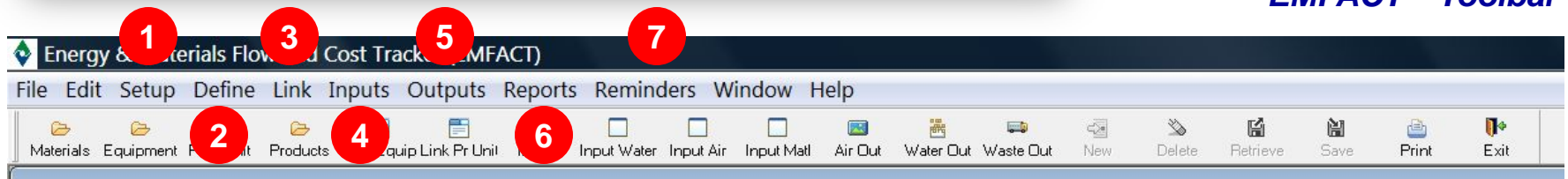
NEWMOA EMFACT™ Dashboard



The EMFACT™ **Dashboard** displays seven distinct areas of functionality accessed via **icons** or **Toolbar** menus:

1. Setup
2. Define
3. Link
4. Input
5. Output
 - Product
 - Non-product
6. Reports
7. Reminders

EMFACT™ Toolbar





- Designed to enable data input & data analysis & reports based on equipment, production unit, or entire facility – maximizes **flexibility** depending on user interests & needs
- **Manages lists** of equipment, materials, & chemicals
- **Pre-populated** with numerous lists – focusing on federal regulatory lists & thousands of CAS numbers

- Includes **21 boiler plate reports** to help users track products, air, water, & waste
- Filters enable user to define report parameters
- **SEARCH** window enables searching by a variety of fields - output can be saved to Excel
- **Reports Procedure Guide:**
www.newmoa.org/prevention/emfact/ReportGuide.pdf



- Materials & chemicals **purchased & used** *per equipment, production unit, facility*; costs
- Materials & chemicals **purchased & used** *incorporated into **product vs. non-product** output*; costs
- Non-product output reports for air emissions, including 12- month rolling averages
- Water pollutant outputs as well as water usage
- Waste activity reports; grouped by waste type

- Mass Balance Reports available at many levels
- **Complex reports to generate** – need all inputs & outputs in same units (pounds)
- Helps user to ensure units are consistent & appropriate conversions are made
- Resource use efficiency graphs

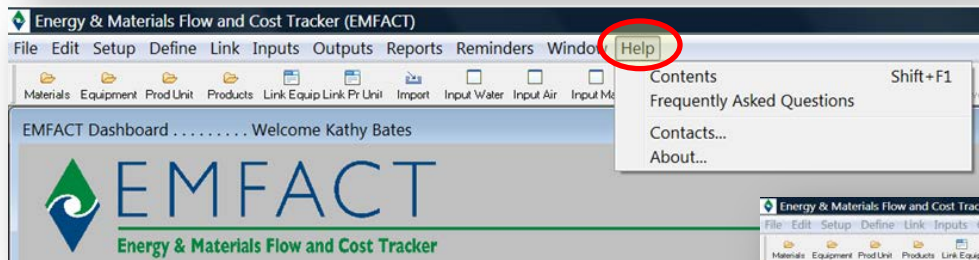
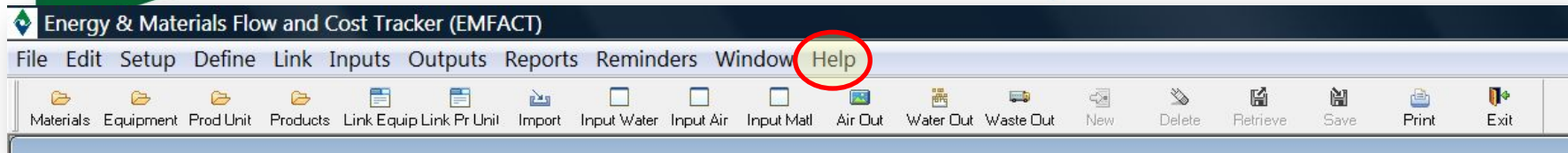
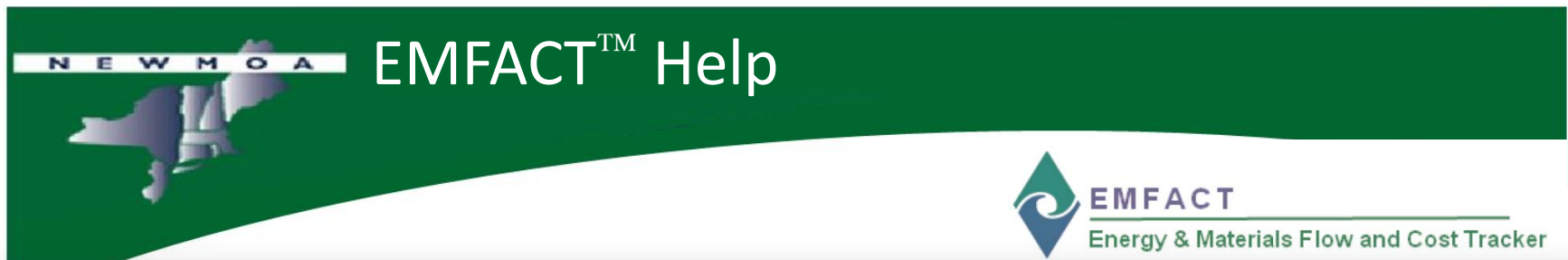


Lists of regulated chemicals:

- SARA 313
- Hazardous Air Pollutants (HAPs)
- Ozone Depleting Substances – Classes I & II
- Ability for users to add chemical lists

Reminders:

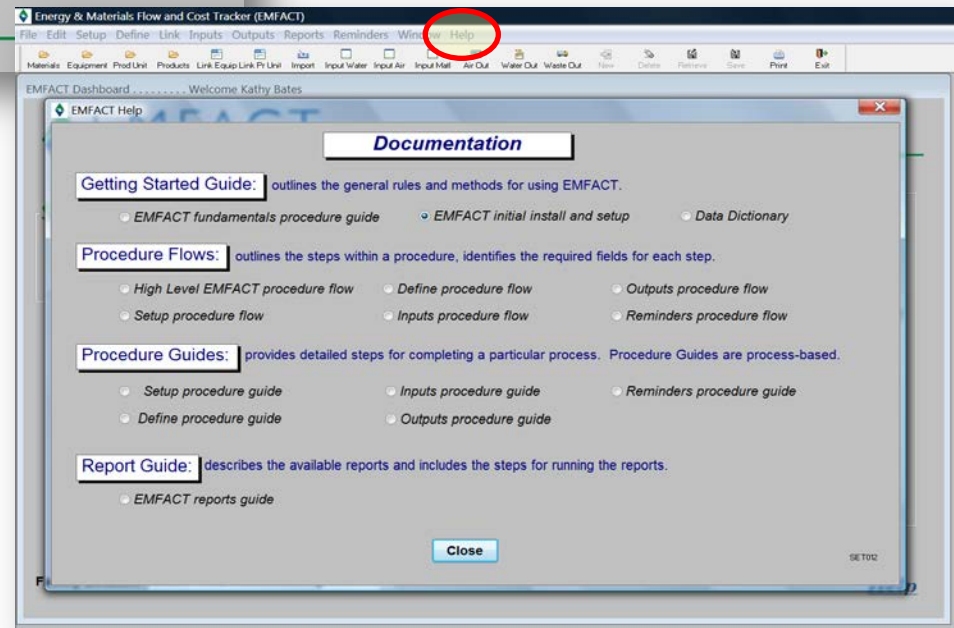
- Screens to list & describe **permits**
- **Calendar with event reminders** (e.g., permit renewal)



Example – “Contents” displays EMFACT™ documentation; click the button next to the documentation to view, print, or download (Adobe PDF)

Toolbar - Help

Help menu on the Toolbar provides access to various EMFACT™ help resources



NEWMOA EMFACT™ Cue Cards

A screenshot of the EMFACT software interface. The main window is titled "Cue Cards for Materials Definition". It contains two sections: "MASTER MATERIAL LIST QUESTIONS" and "MATERIAL LIST DETAILS QUESTIONS". The "MASTER" section asks if the user wants to add materials or edit data, with "Yes" and "No" buttons. The "DETAILS" section asks for more specific information about a material, with a "Previous Question" button and a "Close" button. A sidebar on the right shows icons for "Output Product", "In-product", "Air", "Wastewater", and "Waste". At the bottom, there are dropdown menus for "User" (Kathy Bates) and "Facility Location" (KNOX - KGB Manufacturing), and a "Help" button.

“**Cue Cards**” are provided for users to guide them through the logical series of tasks associated with EMFACT™ windows

Cue Cards are displayed when users click a **dashboard** icon

To access a window **without** using Cue Cards, select the desired functionality from the **Toolbar** menus

Each Cue Card contains a series of questions. Users click **Yes** or **No** to the questions. When answering **Yes**, the appropriate EMFACT™ window will display. If answering **No**, the prompt advances to the next question.



Energy & Materials Flow and Cost Tracker (EMFACT)

File Edit Setup Define Link Inputs Outputs Reports Reminders Window Help

Materials Equipment Prod Unit Products Link Equip Link Pr Unit Import Input Water Input Air Input Mail Air Out Water Out Waste Out New

User List

User IC	User Name	User Type
ADV	Sample Advanced User	<input checked="" type="radio"/> Basic <input type="radio"/> Advanced
BAS	Basic User	<input type="radio"/> Basic <input checked="" type="radio"/> Advanced
KATHY	Kathy Bates	<input type="radio"/> Basic <input checked="" type="radio"/> Advanced

Setup Define Link Inputs

Users
Drop Down Lists
Facility Locations
Buildings
Departments
System Utilities

Access **Setup** → **Users** to indicate if a user has a **Basic** or **Advanced** permission level as a default

Energy & Materials Flow and Cost Tracker (EMFACT)

File Edit Setup Define Link Inputs Outputs Reports Reminders Window Help

Materials Equipment Prod Unit Products Link Equip Link Pr Unit Import Input Water Input Air Input Mail Air Out Water Out Waste Out New Delete Retrieve Save Print Exit

Material List

Filter Data

Material ID: _____ Synonym: _____ Refresh Data
Material Name: _____ Manufacturer Name: _____ Clear Filter
Material Type: _____ CAS Number: _____ More Detail

Material ID	Material Name	Material Type	Manufacturer Name	Density	VOC %	Mfr Written Date	Mfr Rev
FUEL	Sample Fuel Oil	Fuel	Unknown	7.1	0.00	00/00/0000	00/00/00
OTHER	Sample Other Material	Composite	Unknown	19.0	0.00	00/00/0000	00/00/00
PAINT	Sample Paint	Paint	Unknown	10.84	0.00	00/00/0000	00/00/00
WATER	Water - Do Not Delete	Water	Unknown	8.3	0.00	00/00/0000	00/00/00

Advanced users have access to more data entry fields. **Basic** users default to less data entry fields

Energy & Materials Flow and Cost Tracker (EMFACT)

File Edit Setup Define Link Inputs Outputs Reports Reminders Window Help

Materials Equipment Prod Unit Products Link Equip Link Pr Unit Import Input Water Input Air Input Mail Air Out Water Out Waste Out New Delete Retrieve Save Print Exit

Material List

Filter Data

Material ID: _____ Synonym: _____ Refresh Data
Material Name: _____ Manufacturer Name: _____ Clear Filter
Material Type: _____ CAS Number: _____ More Detail

Material ID	Material Name	Material Type	Manufacturer Name	Density	VOC %	Mfr Written Date	Mfr Rev
FUEL	Sample Fuel Oil	Fuel	Unknown	7.1	0.00	00/00/0000	00/00/00
OTHER	Sample Other Material	Composite	Unknown	19.0	0.00	00/00/0000	00/00/00
PAINT	Sample Paint	Paint	Unknown	10.84	0.00	00/00/0000	00/00/00
WATER	Water - Do Not Delete	Water	Unknown	8.3	0.00	00/00/0000	00/00/00

Enable Advanced Fields

Click the **Enable Advanced Fields** checkbox and the additional data entry fields will change from gray to white

NEWMOA EMFACT™ Binoculars



Energy & Materials Flow and Cost Tracker (EMFACT)

File Edit Setup Define Link Inputs Outputs Reports Reminders Window Help

Materials Equipment Prod Unit Products Link Equip Link Pt Unit Import Input Water Input Air Input Mail Air Out Water Out Waste Out New Delete Retrieve Save Print Exit

Equipment Links for: EQ1000

Equipment ID: EQ1000 Name: Equipment 1000

Building: 1A Manufacturing Building

Location: Updated: 11/12/2008

More Detail

Materials Products Air Source Emission Air Factors Discharge Water Poll Waste

Material ID Material Name Material Type Manufacturer Name Active? Update Date

Search For Materials

Material ID: Material Name: sa

CAS Chemical

Mfr. Trade

Material ID	Material Name	Manufacturer Name
FUEL	Sample Fuel Oil	Unknown
OTHER	Sample Other Material	Unknown
PAINT	Sample Paint	Unknown

Trade Name:

Don't Show Inactive Materials

Select This Material Search For Materials Save As Print

Yellow Binoculars Button

Fields that are “searchable” will have the **Yellow Binoculars** icon next to them



Click the **Yellow Binoculars** icon. The appropriate Search window will open

Enter **Search Criteria** and click **Search for Materials**.

Records with matching criteria will be displayed.

Select the desired **Material ID** and click **Select This Material**.

Equipment Links for: EQ1000

Equipment ID: EQ1000 Name: Equipment 1000

Building: 1A Manufacturing Building

Location: Updated: 11/12/2008

Materials Products Air Source Emission Air Factors Discharge Water Poll Waste

Material ID Material Name Material Type Manufacturer Name

PAINT Sample Paint PAINT Unknown

In this example, the **Search For Materials** window is launched



Example: Reminders



EMFACT

Energy & Materials Flow and Cost Tracker

Energy & Materials Flow and Cost Tracker (EMFACT)

File Edit Setup Define Link Inputs Outputs Reports Reminders Window Help

Materials Equipment Prod Unit Products Link Equip Link Pt Unit Import Input Water Input Air Input Mail Air Out Water Out Waste Out New Delete Retrieve Save Print Exit

Calendar Event List

Filter Data

Event Name: Due Date: > 00/00/0000

Location: Reminder Date: > 00/00/0000

Event Status: Open Recurring? No

Dept.:

Refresh Data

Clear Filter Data

More Detail

Due Date	Event No.	Site Code	Event Name	Event Location	Init Reminder	Final Reminder	Event St
03/31/2008	0000001	ABC	Permit Expiration for: 2008-0001		00/00/0000	00/00/0000	Open
03/12/2008	0000002	ABC	Permit Renewal Due for: 2008-0001		00/00/0000	00/00/0000	Open
03/05/2008	0000003	ABC	Permit Renewal Start for: 2008-0001		00/00/0000	00/00/0000	Open
03/31/2008	0000004	ABC	Permit Expiration for: 2008-0001		00/00/0000	00/00/0000	Open
06/30/2008	0000005	ABC	Permit Expiration for: 2008-0001		00/00/0000	00/00/0000	Open
09/30/2008	0000006	ABC	Permit Expiration for: 2008-0001		00/00/0000	00/00/0000	Open
12/31/2008	0000007	ABC	Permit Expiration for: 2008-0001		00/00/0000	00/00/0000	Open

Enable Advanced Fields

Reminders Window Help

Calendar Reminder List

Calendar Reminder Details

View Calendar Events Coming Due

7 Records

REM001

Reminders

The **Reminders** feature enables users to track the renewal and expiration dates of permits, regulations, etc.

When permits and regulations are first set up, users have the option of entering the **Issue**, **Expiration**, **Renewal Due** and **Renewal Start Dates**

When this is done, EMFACT automatically creates calendar events and reminders

Users can also set up independent calendar events for other reasons (e.g., audit reminders, etc.)



Example: Reminders Detail



Energy & Materials Flow and Cost Tracker (EMFACT)

File Edit Setup Define Link Inputs Outputs Reports Reminders Window Help

Materials Equipment Prod Unit Products Link Equip Link Pr Unit Import Input Water Input Air Input Mail Air Out Water Out Waste Out New Delete Retrieve Save Print Exit

Calendar Event Detail: 0000001

Event No.: 0000001 Site Code: ABC Due Date: 03/31/2008 Status: Open

Name: Permit Expiration for: 2008-0001 Location:

Desc:

Contact Person: BAS Basic User Last Update: 02/29/2008

Event Filename GO

Reminder

Initial Reminder Date: Final Reminder Date:

Responsible Department:

Recurring Event

Recurring: Yes No Frequency: of Occurrences: Event No.:

Create Recurring Events

Recurring

Event No.	Event Name	Final Reminder	Due Date	Status
0000004	Permit Expiration for: 2008-0001		03/31/2008	Open
0000005	Permit Expiration for: 2008-0001		06/30/2008	Open
0000006	Permit Expiration for: 2008-0001		09/30/2008	Open
0000007	Permit Expiration for: 2008-0001		12/31/2008	Open

Reminders Window Help

Calendar Reminder List

Calendar Reminder Details

View Calendar Events Coming Due

1 of 4 Records REM002

Reminders

The **Event Details** window provides a full screen view of all fields available to manage events

- Online tutorial/paint line example –
www.newmoa.org/prevention/emfact/elearning/03_training/emf/index.html
- Training slides –
www.newmoa.org/prevention/emfact/EMFACTWorkshopIntrotoEMFACT.pdf
- All support materials –
www.newmoa.org/prevention/emfact/register.cfm



- Developing case studies – seeking companies in NJ
 - Can provide onsite training & assistance
 - Follow-up after ~6 months to write -up results
- Seeking funding for Phase 2 expansions & upgrades



More information



- More on what is EMFACTTM
newmoa.org/prevention/emfact/about.cfm
- Downloading (including registration)
newmoa.org/prevention/emfact/register.cfm



More information



Andy Bray

NEWMOA

(617) 367-8558 x306

abray@newmoa.org

www.newmoa.org

www.newmoa.org/prevention/emfact/